

means for holding the cam in the introduction conduit in a waiting position in which the orifice is at least approximately coaxial with the transverse passage;

two first sliding blocks, spaced apart and parallel, interlockingly mounted to move translationally in the body in a manner that is at least substantially orthogonal to the transverse passage for the shaft, the first sliding blocks being elastically spread apart from the transverse passage by first elastic means, with their external ends projecting outside the body on a first side of the body and their internal ends disposed facing a part of the ovoid peripheral contour of the cam when the cam is in a waiting position;

two second sliding blocks, spaced apart and parallel, in mirror-image relationship to the first sliding blocks and interlockingly mounted to move translationally in the body, in a manner that is at least substantially orthogonal to the transverse passage for the shaft, the second sliding blocks being elastically spread apart from the transverse passage by second elastic means, with their external ends projecting outside the body on a second side of the body, and their internal ends disposed facing another part of the ovoid peripheral contour of the cam when the cam is in the waiting position; and

a mechanical linkage connecting the first and second sliding blocks such that, when the first sliding blocks are pressed against action of the first elastic means to displace the internal ends of the first sliding blocks toward a part of the ovoid peripheral contour of the cam until contact is made therewith, the second sliding blocks are pressed by the mechanical linkage against action of the second elastic means to displace the internal ends of the second sliding blocks toward a second part of the ovoid peripheral contour of the cam until contact is made therewith.

19. (New) A device according to claim 18, wherein lengths of each of the first and second sliding blocks are determined by the ovoid peripheral contour of the cam and by an angular orientation of the cam around the shaft.

20. (New) A device according to claim 19, wherein the first and second sliding blocks are adjustable in length.

21. (New) A device according to claim 18, wherein the spacing between the first sliding blocks and the spacing between the second sliding blocks are determined by the ovoid peripheral contour of the cam and by an angular orientation of the cam around the shaft.

22. (New) A device according to claim 18, wherein the internal ends of the first and second sliding blocks are provided with rolling members for contact with the ovoid peripheral contour of the cam.

23. (New) A device according to claim 18, wherein the means for holding the cam in the waiting position in the introduction conduit comprises a pressing pad pressed elastically toward a reference plate interlocked with the device, the pressing pad being spread apart elastically from the reference plate during introduction of the cam flatly between the pressing pad and the reference plate.

24. (New) A device according to claim 23, wherein the means for holding the cam further comprises a stop system against which the pressing pad is pressed elastically when no cam is in the waiting position, the stop system imposing, between the pressing pad and the reference plate, a minimum spacing smaller than a thickness of the cam.

25. (New) A device according to claim 23, wherein the pressing pad includes a chamfer on which the cam, during displacement toward the waiting position in the introduction conduit, exerts a pressure that causes the pressing pad to be spread apart elastically relative to the reference plate.

26. (New) A device according to claim 23, wherein the means for holding the cam forms a mechanical unit inserted and fixed in the introduction conduit.

27. (New) A device according to claim 18, wherein the body has a form of a thick plate with parallel first and second faces.

28. (New) A device according to claim 27, wherein slideways for the first and second sliding blocks are machined in the first parallel face of the plate, while the introduction conduit is machined only partly in the first face, the second face of the plate being machined to form partly the introduction conduit of another plate, whose first face is configured to be applied against the second face of the plate.

29. (New) A die for production, by expanding, of a tubular camshaft, cams being distributed along the shaft with specific orientations, provided with as many devices according to claim 18 as the shaft has cams, the devices being assembled one after another such that their transverse passages are aligned to form a channel for the tubular shaft and such that their cam introduction conduits are disposed respectively at a position of a cam along the shaft.

30. (New) A die according to claim 29, wherein for each device each respective body has a form of a thick plate with parallel first and second faces, and wherein a thickness of each thick plate constituting each body of each device is determined by positions to be occupied by the cams along the shaft.

31. (New) A die according to claim 30, wherein the bodies of all of the devices have identical thickness, and wherein thickness shims configured to be interposed between the devices are provided to ensure correct correspondence with positions to be occupied by the cams along the shaft.

32. (New) A machine for production, by expanding, of a tubular camshaft, in which cams are distributed along a shaft with specific orientations, provided with at least one die according to claim 29 and with a single actuating member for commonly pressing all of the first sliding blocks of the die, the actuating member being mounted on the machine independently of the die.

33. (New) A machine according to claim 32, provided with a stop for blocking, during an expanding operation, one end of the tubular shaft passing through the cams, the stop being mounted on the machine, independently of the die, facing the channel for the tubular shaft.

34. (New) A machine according to claim 32, equipped with at least two dies, each able to move from at least one cam-loading station to at least one expanding station then, after discharge of the expanded camshaft, from the expanding station to the loading station.

IN THE ABSTRACT

Please amend the Abstract on page 23 as follows:

ABSTRACT

A tool for producing expanded camshafts. The tool includes at least one modular dye made up of segments that are joined together and that are provided with opposing slides for centering and aligning the cams around the axis of the shafts.

REMARKS

Favorable consideration of this application, as presently amended, is respectfully requested.